

WHAT IS CLAIMED IS:

1. An adjustable $\frac{1}{4}$ wave assembly for NMR spectrometry comprising:
a probe having a probe coil and probe capacitors for detecting NMR signals;
a detachable wand comprising a central conducting rod supporting a sliding collar made
5 of electrically conductive material;
a tube fixed to said probe for receiving therein said detachable wand; and
contacts disposed on a periphery of said sliding collar for providing electrical contact
with said tube when said detachable wand being inserted into said tube,
wherein said wand and said tube form a $\frac{1}{4}$ wave shorted stub.
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2. The adjustable $\frac{1}{4}$ wave assembly of claim 1, further comprising a fastening device for
fixing a position of said sliding collar on said central conducting rod.
3. The adjustable $\frac{1}{4}$ wave assembly of claim 2, wherein said probe further comprising an
15 electrical socket that is coupled to said probe coil and said probe capacitors; and said wand
further comprising an electrical plug mating to said electrical socket with two or more electrical
contacts and electrical wiring for providing connection between said probe and said wand.
4. The adjustable $\frac{1}{4}$ wave assembly of claim 3, wherein said wand further comprising wand
20 capacitors.
5. The adjustable $\frac{1}{4}$ wave assembly of claim 4, wherein said electrical wiring comprises
spring clips for mounting said wand capacitors, number of said spring clips exceeds or equal to
number of said wand capacitors for providing respectively single or double frequencies
25 operation of said probe.
6. The adjustable $\frac{1}{4}$ wave assembly of claim 3, wherein said wand further comprising
electrical jumpers.
- 30 7. The adjustable $\frac{1}{4}$ wave assembly of claim 6, wherein said electrical wiring comprises
spring clips for mounting said electrical jumpers, wherein number of said spring clips exceeds or
equal to a number of said electrical jumpers for providing respectively single or double
frequencies operation of said probe.

8. The adjustable $\frac{1}{4}$ wave assembly of claim 5, wherein one of said wand capacitors is connected in parallel with said probe coil to reduce the resonant frequency of said probe.

9. The adjustable $\frac{1}{4}$ wave assembly of claim 8, wherein said electrical wiring is connected to one or more wand capacitors for switching the frequencies of operation of said probe and forming an electrical short circuit across said $\frac{1}{4}$ wave shorted stub.

10. An adjustable $\frac{1}{4}$ wave assembly for NMR spectrometry comprising:
a probe having a probe coil and probe capacitors for detecting NMR signals, and
a detachable wand having:

a sliding collar made of electrically conductive material;
a central conducting rod supporting said sliding collar;
means for fixing a position of said sliding collar on said central conducting rod;
a tube surrounding said rod and said conducting collar,

finger contacts disposed on periphery of said conducting collar for providing electrical contact with said tube,
wherein said conducting rod, sliding collar and said tube form a $\frac{1}{4}$ wave shorted stub.

11. The adjustable $\frac{1}{4}$ wave assembly of claim 10, wherein said probe further comprising an electrical socket and said wand further comprising a mating electrical plug of two or more electrical contacts to form connections between said probe and wand when said wand is attached to said probe.

12. The adjustable $\frac{1}{4}$ wave assembly of claim 11, wherein said electrical socket is coupled to the said probe coil and one or more probe capacitors, and said electrical plug is coupled to an electrical wiring.

13. The adjustable $\frac{1}{4}$ wave assembly of claim 12, wherein said wand further comprising up to three wand capacitors.

14. The adjustable $\frac{1}{4}$ wave assembly of claim 13, wherein said electrical wiring includes spring clips for selectively mounting said wand capacitors.

15. The adjustable $\frac{1}{4}$ wave assembly of claim 14, wherein said wand further comprising electrical jumpers.

5 16. The adjustable $\frac{1}{4}$ wave assembly of claim 15, wherein said electrical wiring includes spring clips for selectively inserted one or more electrical jumpers.

17. The adjustable $\frac{1}{4}$ wave assembly of claim 16, wherein one capacitor of said wand is connected in parallel with said probe coil to lower the resonant frequency of the said probe.

10 18. The adjustable $\frac{1}{4}$ wave assembly of claim 17, wherein said electric wiring is connected to one or more wand capacitors to thereby switch the frequencies of said probe making it sensitive to a different pair of nuclei.